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# WRAMC Computerized Neuropsychological Assessment of Army Aviators

Computerized assessment of neuropsychological functioning has evolved in recent years into a promising method for reducing test administration time and the variability typically associated with the more traditional methods of neuropsychological assessment. The practice of neuropsychological assessment within the critical specialties of the Army such as aviation lacks standardization and there is currently no system for assessing baseline cognitive functioning. Such assessment is important in critical populations because it provides information about specific cognitive abilities (e.g. reaction time, memory, attention, concentration) that could improve medical evaluation following neurological compromise. In addition, baseline cognitive functioning data may assist in predicting aviator trainees' performance in a training environment, offering the opportunity for improved selection and training decisions. The current project seeks to address the lack of standardized cognitive screening methods within Army Aviation, as well as to develop a uniform database system with electronic data transmission capabilities.

Research objectives include:

- Development of a digitized database for computerized neuropsychological measures
- Development of a system to electronically transmit neuropsychological test data collected at a remote location to a centralized database
- Exploration of relationships between select neuropsychological variables (derived from ANAM, CogScreen & MicroCog) and check-flight performances during Initial Entry Rotary Wing (IERW) training

To date, we have begun development of the US Army Neuropsychology website in an effort to demonstrate the ability to gather and transmit neuropsychological data from a remote location. Additional developments include:

- The Neuropsychology History Questionnaire – Aeromedical Edition (NHQ-AE)
  - A brief web-enabled history questionnaire designed to function as an online instrument to collect demographic information and an abbreviated medical history
- The US Army - Aeromedical Cognitive Assessment Tool (USA-ACAT)
  - Derived from the Automated Neuropsychological Assessment Metrics – 2001 (ANAM2001), a library of tests and designed to function as a brief computerized neuropsychological test battery
  - Is downloadable to authorized users from the US Army Neuropsychology website
- Web enabled digitized database for the purpose of uploading and storing data obtained from the USA-ACAT

Evaluation of the initial web-based system suggest it is feasible to use the website and database platform to administer the history questionnaire, download the USA-ACAT for administration at a distant location, and to upload files containing test data from the USA-ACAT. Results of preliminary analyses between neuropsychological variables and CheckFlight Performance show that each computerized test battery has select subtests that are significantly correlated with Checkflight Performance and that use of any of these subtests may prove useful in future validation studies.

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